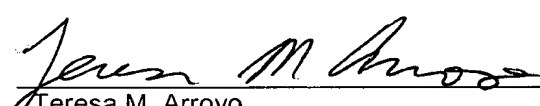
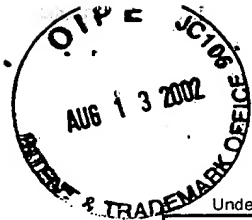




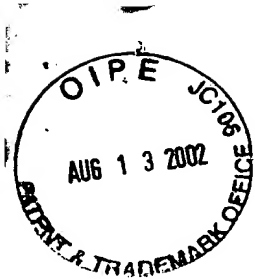
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<b>TRANSMITTAL OF APPEAL BRIEF</b>			Docket No. 8733.213.00-US	
In re Application of: Jin JANG et al.				
Application No. 09/497,508	Filing Date February 4, 2000	Examiner W. Louie	Group Art Unit 2814	
Invention: POLYCRYSTALLINE SILICON FILM CONTAINING Ni				
<p style="text-align: center;"><b><u>TO THE COMMISSIONER OF PATENTS:</u></b></p> <p>Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the notice of Appeal filed: <u>August 13, 2002</u></p> <p>The fee for filing this Appeal Brief is <u>320.00</u></p> <p><input checked="" type="checkbox"/> Large Entity      <input type="checkbox"/> Small Entity</p> <p><input checked="" type="checkbox"/> A check in the amount of <u>320.00</u> is enclosed.</p> <p><input type="checkbox"/> Charge the amount of the fee to Deposit Account No. _____ This sheet is submitted in duplicate.</p> <p><input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees that may be required or credit any overpayment to Deposit Account No. <u>50-0911</u> This sheet is submitted in duplicate.</p> <div style="text-align: right; margin-top: 20px;"><p>RECEIVED AUG 20 2002 TECHNOLOGY CENTER 2800</p></div>				
 Teresa M. Arroyo Attorney Reg. No. : 50,015 MCKENNA LONG & ALDRIDGE LLP 1900 K Street, N.W. Washington, DC 20006 (202) 496-7371		Dated: <u>August 13, 2002</u>		



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FEE TRANSMITTAL for FY 2002 <i>Patent fees are subject to annual revision.</i>		Complete if Known	
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27		Application Number	09/497,508
TOTAL AMOUNT OF PAYMENT (\$)		Filing Date	February 4, 2000
320.00		First Named Inventor	Jin JANG et al.
		Examiner Name	Wai Sing Louie
		Group Art Unit	2814
		Attorney Docket No.	8733.213
METHOD OF PAYMENT (check all that apply)		FEE CALCULATION (continued)	
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The Commissioner is hereby authorized to: (check all that apply)		127 50 227 25 Surcharge - late provisional filing fee or cover sheet.	
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		113 1,840* 113 1,840* Requesting publication of SIR after Examiner action	
		115 110 215 55 Extension for reply within first month	
		116 400 216 200 Extension for reply within second month	
		117 920 217 460 Extension for reply within third month	
		118 1,440 218 720 Extension for reply within fourth month	
		128 1,960 228 980 Extension for reply within fifth month	
		119 320 219 160 Notice of Appeal	
		120 320 220 160 Filing a brief in support of an appeal	
		121 280 221 140 Request for oral hearing	
		138 1,510 138 1,510 Petition to institute a public use proceeding	
		140 110 240 55 Petition to revive - unavoidable	
		141 1,280 241 640 Petition to revive - unintentional	
		142 1,280 242 640 Utility issue fee (or reissue)	
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		144 620 244 310 Plant issue fee	
		122 130 122 130 Petitions to the Commissioner	
		123 50 123 50 Processing fee under 37 CFR 1.17(q)	
		126 180 126 180 Submission of Information Disclosure Stmt	
		581 40 581 40 Recording each patent assignment per property (times number of properties)	
		146 740 246 370 Filing a submission after final rejection (37 CFR 1.129(a))	
		149 740 249 370 For each additional invention to be examined (37 CFR 1.129(h))	
		179 740 279 370 Request for Continued Examination (RCE)	
		169 900 169 900 Request for expedited examination of a design application	
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Large Entity Small Entity		SUBTOTAL (3) (\$) 320.00	
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103 18 203 9 Claims in excess of 20			
102 84 202 42 Independent claims in excess of 3			
104 280 204 140 Multiple dependent claim, if not paid			
109 84 209 42 ** Reissue independent claims over original patent			
110 18 210 9 ** Reissue claims in excess of 20 and over original patent			
SUBTOTAL (2) (\$) 0.00			
**or number previously paid, if greater; For Reissues, see above			
SUBMITTED BY		Complete (if applicable)	
Name (Print/Type) Teresa M. Arroyo		Registration No. (Attorney/Agent) 50,015	
Telephone (202) 496-7371		Date August 13, 2002	
Signature <i>Teresa M. Arroyo</i>			



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of

Jin JANG et al.

Group Art Unit: 2814

Serial No.: 09/497,508

Examiner: Wai Sing LOUIE

Filed: February 4, 2000

Title: POLYCRYSTALLINE SILICON FILM CONTAINING Ni

**Box AF**

Honorable Commissioner for Patents  
Washington, D.C. 20231

**APPEAL BRIEF**

Sir:

In response to a Final Rejection of all pending claims that was mailed on January 14, 2002, and in support of a "Notice of Appeal" filed on June 13, 2002, Appellant hereby submits this Appeal Brief.

The fees required under § 1.17(f) and any required petition for extension of time for filing this brief and fees therefore, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief is transmitted in triplicate.

**Real Party in Interest**

The real party of interest is LG. Philips LCD Co. Ltd., a South Korean Corporation.

**Related Appeals and Interferences**

There are no related appeals or interferences known to the undersigned attorney.

**Status of Claims**

Claims 1-9 were originally filed. Claim 8 is canceled. Claims 1-7 and 9 are pending and stand rejected. The rejections of claims 1-7 and 9 are appealed. A copy of the claims involved in the present appeal is attached hereto as Appendix A.

#14/appeal  
Brief  
8/20/02  
C. Davis

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### **Status of Amendments**

The Appellant submitted an Amendment Under 37 CFR 1.116 on April 15, 2002. In response, the Examiner mailed an Advisory Action dated May 20, 2002, which did not indicate whether the amendment had been entered, but indicated that it failed to place the application in condition for allowance.

Therefore, in view of a Notice of Appeal filed on June 13, 2002, and in view of this Appeal Brief, the April 15, 2002 "Amendment After Final" should be entered.

### **Summary of Invention**

The present invention relates to a polycrystalline silicon film which is crystallized with a metal induction (rapid thermal treatment, thermal treatment being applied by electric field or rapid thermal treatment being applied by electric field) containing a small amount of Ni in all portions of a thin film. The completed polycrystalline silicon becomes needle-shaped silicon crystallites and can be used in the active layer of an element such as a thin film transistor, solar battery etc, without using surface etching before or after the crystallization process.

If the density of a nickel atom in the thin film deviates from the specified density indicated by the present invention, the polycrystalline silicon cannot become needle-shaped crystal particles and the electric characteristics markedly declines.

To put it concretely, if an amount less than the minimum amount of Ni indicated in the present invention is contained, a polycrystalline silicon thin film forms the shape of dendrite crystallites, linear-shaped solid phase crystallization. It is impossible for direct use for manufacturing an element of high performance without a separate treatment such as high thermal treatment, rapid thermal treatment, laser irradiation etc, due to many defects existing between the border of the crystallite and the crystal. Also, if an amount more than the maximum amount of Ni indicated by the present invention is contained, needle-shaped silicon crystallites forming the thin film get remarkably smaller than a shape of needle in its size. The entire of thin film is filled with the crystallites formed in the shape of small circular appearance. Accordingly, the contained nickel cannot be used for manufacturing an element due to electric and structural defects.

### Issues

The first issue on appeal is whether claims 1, 3, 6, 9 were properly rejected under 35 USC 112, first paragraph as introducing new matter to the specification and claims and not describing in the specification how to make and/or use the invention by amending “bar-like silicon crystallites” with the term “needle-shaped silicon crystallites”.

The second issue on appeal is whether claims 1-7, and 9 were properly rejected under 35 USC 103(a) as being unpatentable over Ohtani et al. (US Patent No. 5,612,250) in view of Fonash et al. (US Patent No. 5,994,164).

### Grouping of Claims

Appellant respectfully asserts that on the first issue claims 1, 3, 6, and 9 stand or fall together.

Appellant respectfully asserts that on the second issue claims 1-7, and 9 stand or fall together.

### Arguments

#### First Issue

Claims 1, 3, 6, 9 were improperly rejected under 35 USC § 112, first paragraph as introducing new matter to the specification and claims and not describing in the specification how to make and/or use the invention by amending “bar-like silicon crystallites” with the term “needle-shaped silicon crystallites”.

The first paragraph of 35 USC § 112 sets forth two separate requirements. First, the claims must set forth the subject matter that applicants regard as their invention. Second, the claims must particularly point out and distinctly define the metes and bounds of the subject matter that will be protected by the patent grant. Further, when the specification states the meaning that a term in the claim is intended to have, the claim is examined using that meaning, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art. *In re Zletz*, 893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989).

Claims 1, 3, 6, and 9 set forth that needle-shaped silicon crystallites is part of the invention. Appellant sought to more clearly define the shape of the crystallites in filing the

amendment changing “bar-like” to “needle-shaped”. The specification states the meaning that “needle-shaped” is intended to have by describing the growth of the crystallites shown in the figures. The term “needle-shaped” used to describe the crystallites is not repugnant to the usual meaning. For example, the term “needle-shaped” has been used in the claims of several patents, including at least U.S. Patent Nos. 6,365,933, 6,194,254, 6,120,891 to describe the growth of the crystallites in a silicon film containing metal. Appellants respectfully submit that the terminology “needle-shaped” would be understood by one of ordinary skill in this art. Further, the description of the crystallites shown in the figures as being “bar-like” or “needle-shaped” should be interpreted as intended by Appellants since they are their own lexicographers. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947).

Appellants respectfully submit that the amendment changing “bar-like” to “needle-shaped” to overcome the 35 USC § 112 rejection is not new matter introduced into the specification and that the specification describes how to make and/or use the invention. Appellants request that the rejection under 35 USC § 112, first paragraph be withdrawn.

#### Second Issue

Claims 1-7, and 9 were improperly rejected under 35 USC § 103(a) as being unpatentable over Ohtani et al. (US Patent No. 5,612,250) in view of Fonash et al. (US Patent No. 5,994,164).

To establish a *prima facie* case of obviousness under 35 USC § 103, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Second, there must be some suggestion or motivation in the references themselves to modify the reference or to combine reference teachings. Third, there must be a reasonable expectation of success for the modification or combination of references. Further, the teaching or suggestion to make the modification or combination of prior art and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Additionally, there must be particular finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge to the claimed invention to combine or modify references. *In re Kotzab*, 217 F.3d 1365, 55 U.S.P.Q.2d 1313 (Fed. Cir. 2000). Also, see M.P.E.P. § 2143.

In order to obtain the density ranges of Ni atoms in claims 1, 3, 6, and 9, the silicon film requires a separate process as described at column 7, lines 3-23 of Ohtani et al. Further, the value of the electrical conductivity activation energy is not disclosed as admitted by the Examiner. Thus, Ohtani et al. does not teach or suggest all the claim limitations.

The Examiner cites Fonash et al. in an attempt to cure the deficiencies of Ohtani et al. Fonash et al. may recite an electrical conductivity activation energy similar to the value in claims 1, 3, 6, and 9, but Fonash et al. uses solid phase crystallization (SPC) rather than metal induced crystallization (MIC) described in the specification of this application and apparent from the recitation of Ni atoms in the claims. Fonash et al. does not teach or suggest the claimed invention as a whole. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983); see also *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976). Appellants respectfully submit that Fonash et al. fails to cure the deficiencies of Ohtani et al.

Furthermore, the Examiner has not pointed out a particular finding as to the specific understanding or principle within the knowledge of a skilled artisan, either expressly or by implication that would have motivated one with no knowledge to combine or modify Ohtani et al. Accordingly, no proper motivation or suggestion is found in Fonash et al. for one of ordinary skill in the art to combine the teachings. There is no reasonable expectation of success by combining the two teachings. Such combination is suggested only by the claimed invention and that combining is considered impermissible hindsight.

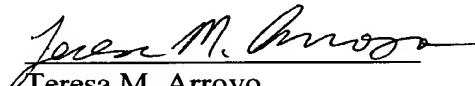
Fonash et al. is not attempting to solve similar problems with the same solution. "[A] patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is part of the 'subject matter as a whole', which should always be considered in determining the obviousness of an invention under 35 USC § 103." *In re Sponnoble*, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969). However, "discovery of the cause of a problem . . . does not always result in a patentable invention. . . . [A] different situation exists where the solution is obvious from prior art which contains the same solution for a similar problem." *In re Wiseman*, 596 F.2d 1019, 1022, 201 USPQ 658, 661 (CCPA 1979) (emphasis in original).

Through the combination of references used by the Examiner, she has taken a specific aspect of the claim, i.e., electrical conductive activation energy, to be the only advantage of the invention, and disregarded the other elements of the claims.

Accordingly, Appellant respectfully requests withdrawal of the rejection based on the combination of references. Appellant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness.

In view of the foregoing arguments, Appellant respectfully requests that the Board of Appeals overturn the Examiner's rejections and objections and allow claims 1-7, and 9.

Respectfully submitted,

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